

## CLAIMS

1. An electrode arrangement (30; 60; 82) for electrothermal treatment of the human or animal body, comprising at least one electrode (32, 33; 62, 63) arranged on an electrode carrier (31; 61a-c) for insertion into the body, which is connected by way of a supply line to an alternating current source (81), and a temperature control device (35; 64, 65; 84, 85) for influencing the effective temperature profile in the treatment region (34), characterised in that

the electrode carrier and the electrode or electrodes are adapted for direct, in particular duct-forming insertion into body tissue, and

the temperature control device has a time-controllable heating device (85) for thermal support of the insertion.

2. An electrode arrangement as set forth in claim 1 characterised in that the heating device (85) is adapted for temperature control of at least one region of the surface of the arrangement above 30°C, in particular above body temperature.

3. An electrode arrangement as set forth in claim 1 or claim 2 characterised in that the electrode (62, 63) and/or the electrode carrier (61a, 61b) has a cavity (64, 65) which is closed off relative to the body and which is in fluid communication with a temperature-controllable fluid source (83, 85), in particular by way of a quantitative flow rate control device (84, 87).

4. An electrode arrangement as set forth in claim 1 or claim 2 characterised in that the electrode and/or the electrode carrier has a thermoelectric heating and cooling device.

5. An electrode arrangement as set forth in one of the preceding claims characterised in that the electrode carrier has a tubular element (61a, 61b) of electrically insulating material with a reducing, in particular conical distal end, on the peripheral surface of which is arranged the electrode (62, 63) and in the interior of which is arranged the temperature control device (64, 65).

6. An electrode arrangement as set forth in one of the preceding claims characterised by being in the form of a bipolar arrangement which includes two electrodes (32, 33; 62, 63) which are disposed on the peripheral surface of one and the same electrode carrier (31; 61a, 61b).

7. An electrode arrangement as set forth in claim 6 characterised in that there is provided a common temperature control device (35; 64, 65) for both electrodes (32, 33; 62, 63).

8. An electrosurgery apparatus having an electrode arrangement as set forth in one of the preceding claims characterised in that there is provided an effective temperature profile control device (87) for controlling the heating or cooling output and/or the spatial distribution thereof, said control device being connected to the temperature control device (83) by way of a control signal connection for selectively supplying a heating or cooling output control signal.

9. An electrosurgery apparatus as set forth in claim 8 characterised in that the effective temperature profile control device (87) is additionally connected to the alternating current source (81) by way of a control input for supplying a heating power control signal for controlling the alternating current output and/or the spatial distribution thereof.

10. An electrosurgery apparatus as set forth in claim 8 or claim 9 characterised in that the effective temperature profile control device (87) includes an interactively programmable calculation unit (87.2) for determining simulated time-dependent effective temperature profiles on the basis of parameters of the tissue and the electrode arrangement (82) and assumed parameters of the alternating current source (81) and the temperature control device (83) and for varying the assumed parameters to ascertain an optimized time-dependent effective temperature profile.

11. An electrosurgery apparatus as set forth in one of claims 8 through 10 characterised by at least one low-inertia temperature sensor (86) which is connected to an input of the effective temperature profile control device (87) and which can be arranged in a predetermined position relative to the electrode arrangement in the body, in particular adjacent to an electrode or the electrode carrier.

12. An electrosurgery apparatus as set forth in claim 10 or claim 11 characterised in that the temperature sensor or sensors (86) is or are connected to an input of the calculation unit (87.2) and same has means for verification or correction of a simulated time-dependent effective temperature profile on the basis of the temperature sensor signal.

13. An electrosurgery apparatus as set forth in one of claims 8 through 12 characterised in that the effective temperature profile control device has means (87.1, 87.2, 87.6) for ascertaining and storing a time-dependency of the heating or cooling output control signal and for outputting the respective control signal in accordance with the stored time-dependency.